

**REMARKS**

Claims 1-23 are pending in the application. By this Amendment, Claims 1, 7, 12, 14 and 17 are amended, and new Claims 18-23 are added.

New Claims 18-23 are fully supported by the application as originally filed, and do not add new matter. See for example the figures and the last sentence of numbered paragraph 007.

In the Office Action, the Examiner rejects Claims 1-17 under 35 U.S.C. § 102(b) over U.S. Patent No. 4,949,022 to Lipman (Lipman).

This rejection is respectfully traversed. The motor disclosed in Lipman is open, and fails to disclose or suggest *a sealed casing surrounding the rotor and the stator so that cooling air that flows through the rotor travels in a closed path within the sealed casing*, as recited in Claims 1, 12, 14 and 22. As Figure 2 of Lipman unmistakably reveals, the housing 12 is not sealed, and is open to the left and to the right. Lipman's housing 12 does not surround the rotor and the stator, because it is open to the left and to the right in the direction of air flow, as shown in Figure 2.

Lipman also fails to disclose or suggest *driving air through passages formed between the sealed casing and the stator*, as recited in Claim 12.

In addition, the bearing assembly disclosed in Lipman features the rotor 40 rotating relative to a fixed shaft, with ball bearings 34, 36 located between the rotor hub 38 and the shaft as shown in Figure 2. Accordingly, Lipman fails to disclose or suggest *bearings encompassing a shaft fixed to the rotor and supporting the shaft relative to the sealed casing* as recited in Claims 18 and 20, and likewise fails to disclose or suggest *supporting*

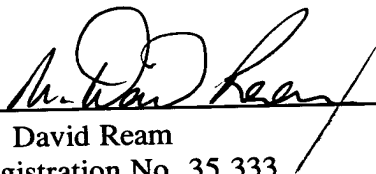
*the rotor relative to the sealed casing via bearings encompassing a shaft fixed to the rotor, as recited in Claim 19. For the same reasons, Lipman fails to disclose or suggest a rotary electromechanical device including a shaft secured to the rotor in a non-rotatable manner; and bearings mounted on the casing for supporting the shaft, as recited in Claim 21.*

For at least the above reasons, Applicants respectfully submit that Lipman fails to disclose all features recited in the claims. Withdrawal of the rejection of Claims 1-17 under 35 U.S.C. § 102(b) over Lipman is respectfully requested.

Applicants respectfully submit that the application is in condition for allowance. Favorable consideration on the merits and prompt allowance are respectfully requested. In the event any questions arise regarding this communication or the application in general, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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Attachment to Amendment dated 28 August 2002

**Marked-up Claims 1, 7, 12, 14 and 17**

*Amended* 1. A rotary electromechanical device, comprising:  
a rotor, the rotor comprising a hollow hub and a plurality of magnet poles, the hollow hub having at least one aperture at each end to form at least one first passage extending through the hollow hub;  
a stator; and  
a sealed casing surrounding the rotor and the stator so that cooling air that flows through the rotor travels in a closed path within the sealed casing.

2. The device of claim 1, wherein the at least one first passage extends along a rotational axis of the hollow hub.

3. The device of claim 1, wherein the rotor further comprises vanes fixed to the hollow hub to force air through the hollow hub when the rotor is spinning.

4. The device of claim 3, wherein the vanes are located in the at least one passage.

5. The device of claim 3, wherein the vanes are located at the at least one aperture.

6. The device of claim 3, wherein the vanes are arranged to drive air in the same direction.

*Amended* 7. The device of claim 1, [further] comprising:  
[a stator partially surrounding the rotor;  
an outer casing surrounding the stator; and]  
at least one second passage a) having walls formed by at least one of the stator and the outer casing, and b) communicating with each end of the at least one first passage.

8. The device of claim 7, wherein the device is a brushless machine.

9. The device of claim 7, wherein the at least one second passage extends through the stator.

10. The device of claim 7, wherein the at least one second passage extends between the stator and a case of the device.

11. The device of claim 1, comprising a stator partially surrounding the rotor.

*Amended* 12. A method for cooling a rotary electromechanical device having a rotor, a stator and a sealed casing surrounding the rotor and the stator so that cooling air that flows through the rotor travels in a closed path within the sealed casing, comprising:

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**Marked-up Claims 1, 7, 12, 14 and 17**

providing the rotor with a hollow center and apertures at each end of the rotor; and driving air through the hollow center of the rotor via the apertures; and driving air through passages formed between the casing and the stator.

13. The method of claim 12, further comprising:  
providing vanes at an end of the rotor; and  
spinning the rotor to drive air through the apertures and the hollow center of the rotor via the vanes.

*Amended* 14. An electric machine, comprising:  
a rotor; [and]  
a sealed casing surrounding the rotor so that cooling air that flows through the rotor travels in a closed path within the sealed casing; and  
means for driving air through a center of the rotor.

15. The electric machine of claim 14, wherein the means for driving air is arranged to drive air through the center of the rotor, along a rotational axis of the rotor.

16. The electric machine of claim 14, wherein the means for driving comprises:  
vanes fixed to the rotor and angled to force air through a hollow hub of the rotor when the rotor is rotating.

*Amended* 17. The electric machine of claim 14, [further] comprising:  
a stator partially surrounding the rotor within the sealed casing;  
[an outer casing surrounding the stator;] and  
means for conveying air exiting from one end of the rotor, to the other end of the rotor.